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# A Bibliography of the NIST Electromagnetic Technology Division

Ann G. Bradford, Editor

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Electromagnetic Technology Division
Electronics and Electrical Engineering Laboratory
National Institute of Standards and Technology
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# A Bibliography of the NIST Electromagnetic Technology Division Publications

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## ABSTRACT

This bibliography lists the publications of the staff of the Electromagnetic Technology Division of NIST during the period from January 1970 through July 1999. The bibliography is divided into two general sections: (a) Cryoelectronic Metrology and (b) Superconductor and Magnetic Measurements. Included in the Cryoelectronic Metrology section are citations in the following project areas: Josephson-Array Development; Nanoscale Cryoelectronics; High Performance Sensors, Infrared Detectors, and Mixers; and High $T_c$ Electronics. In the Superconductor and Magnetic Measurements section are citations in the following areas: Magnetic Recording Metrology; Magnetic Instruments and Materials Characterization; Nanoprobe Imaging for MagneticTechnology; Superconductor Standards and Technology; and Superconductor Interfaces and Electrical Transport. In each section, the most recent publications are listed first.

Key words: cryoelectronics; electromagnetic metrology; X-ray detectors; voltage standards; Josephson junctions; superconductivity; magnetics; magnetic recording; magnetic imaging

## INTRODUCTION

The Electromagnetic Technology Division was formed during the reorganization of the National Bureau of Standards (now the National Institute of Standards and Technology) in April 1978 by combining parts of the former Electromagnetics and Cryogenics Divisions. It developed measurement methods and standards and provided metrological support for laser systems, optical communication equipment, cryoelectronics, magnetics, superconductors, and other unusual electrical engineering materials. Therefore, this bibliography covers the period beginning before the reorganization and includes at least the more recent origins of the present work of the division. In 1994, the Electromagnetic Technology Division was divided into two divisions: the remaining Electromagnetic Technology Division, which includes projects in areas of cryoelectronics metrology and superconductor and magnetic measurements and the spin-off Optoelectronics Division, which encompasses projects in the former optoelectronics group.

Other information sources may be useful to the reader who is interested in NIST activities connected with electromagnetic metrology. Two companion bibliographies, NISTIR 5084 and NISTIR 5086, list publications of the Radio-Frequency Technology Division and the Optoelectronics Division for the same period. An excellent summary of the whole field of electromagnetic metrology as it stood in 1967 was published as a special issue of the Proceedings of the IEEE (volume 55, June 19967). Advances in the following decades were described in two other special issues of the same journal (volume 66, April 1978, and volume 74, January 1986).

## A Note on Abbreviations

NOTE: On August 23, 1988, the National Bureau of Standards (NBS) became the National Institute of Standards and Technology (NIST); therefore, documents with either prefix are considered NIST publications.

Most readers are familiar with the commonly used abbreviations for the names of the professional journals that appear in this bibliography. Some publication series are peculiar to NIST and may call for explanation. They are:

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|---|---|
| NISTIR - NIST Interagency/Internal Report | NBSIR - NBS Interagency/Internal Report |
| NIST TN - NIST Technical Note | NBS TN - NBS Technical Note |
| NIST SP - NIST Special Publication | NBS SP - NBS Special Publication |
| NIST HB - NIST Handbook | NBS HB - NBS Handbook |
| NIST JRES - Journal of Research of NIST | NBS JRES - Journal of Research of NBS |
| NIST MN - NIST Monograph | NBS MN - NBS Monograph |

## Purchase Procedures and Document Availability

NIST (NBS) Technical Notes, Special Publications, Handbooks, Journals of Research, and Monographs may be purchased from the U.S. Government Printing Office (GPO) at the following address: New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. The GPO website is at http://www.access.gpo.gov/ and the order desk phone number is 202-512-1800. Orders may be paid by major credit card, or by check or money order payable in U.S. dollars to the Superintendent of Documents. The Government Printing Office usually stocks these publications for a maximum of two years, after which they may be purchased from the National Technical Information Service (NTIS), Springfield, VA 22161. The NTIS website for information and ordering is at http://www.ntis.gov. The phone number for ordering is 703-487-4650.

Reprints of papers published in non-NIST media may be available in limited quantities from the authors.

## Acknowledgments

A large part of the labor of preparing a bibliography is spent collecting and arranging the material; Lisa Eldrige and Mary E. DeWeese assisted with these tasks. The main sources of material were the NIST Boulder Editorial Review Board database, the National Technical Information Service, and information supplied by individual authors.

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